

WHAT IS CLAIMED IS

1. A system for managing flow of data in a network device, comprising:  
a plurality of high priority queues configured to store data unit information;  
a plurality of low priority queues configured to store data unit information; and  
an arbiter configured to selectively bypass a low priority queue based on a size of a data unit in the low priority queue.
2. The system of claim 1, wherein the arbiter includes:  
a high priority arbiter configured to perform arbitration on a plurality of high priority queues, and  
a low priority arbiter configured to perform arbitration on a plurality of low priority queues when enabled.
3. The system of claim 2, wherein the low priority arbiter is enabled when none of the plurality of high priority queues contains a notification.
4. The system of claim 2, wherein the high priority arbiter and the low priority arbiter are each configured to perform round-robin arbitration on their respective queues.
5. The system of claim 1, wherein the arbiter includes:

a comparison element configured to compare a size of a data unit with one or more thresholds and to output one or more control signals based on the comparison.

6. The system of claim 5, wherein the arbiter further includes:

a delay element configured to produce one or more delay signals in response to the one or more control signals from the comparison element; and

a mask register configured to prevent the low priority arbiter from selecting one or more low priority queues for a duration defined by the one or more delay signals.

7. The system of claim 6, wherein the one or more low priority queues prevented from being selected by the mask register include:

a low priority queue associated with the data unit whose size was compared to the one or more thresholds.

8. The system of claim 1, further comprising:

a flow control device coupled to the arbiter and configured to determine a size of data units and to provide a flow control signal when the size exceeds a threshold, wherein the flow control device has an associated latency.

9. The system of claim 8, wherein the duration of the one or more delay signals is based on the latency of the flow control device.

10. The system of claim 5, wherein the one or more thresholds of the comparison element is based on a processing rate of a processor.

11. A method for managing flow of data in a network device, comprising:  
selecting high priority data units;  
selecting low priority data units if no high priority data units can be selected; and  
comparing a size of the selected low priority data units with a threshold.

12. The method of claim 11, further comprising:  
preventing at least one low priority data unit from being selected for a duration based on a comparison of the size of the low priority and the threshold.

13. The method of claim 12, further comprising:  
generating a delay signal of the duration based on the size of a low priority data unit.

14. The method of claim 11, wherein each of said selecting act includes:  
performing arbitration.

15. The method of claim 11, wherein the threshold relates to rate of processing by a processor.

16. The method of claim 13, further comprising:

controlling sending data units based on a size of the data units, where said controlling has a latency associated therewith.

17. The method of claim 16, wherein the duration of the delay signal relates to the latency associated with the controlling.

18. A system for managing data flow in a network device, comprising:

a plurality of high priority queues configured to store notifications corresponding to the high priority packets;

a plurality of low priority queues configured to store notifications corresponding to the low priority packets;

a high priority arbiter configured to perform arbitration on the plurality of high priority queues and to select a notification;

a low priority arbiter configured to perform arbitration on the plurality of low priority queues and to select a notification when no notifications are present in the plurality of high priority queues;

circuitry configured to compare a data unit size associated with the selected notification with a threshold, and to remove the low priority queue that contained the selected

notification from further arbitration for a programmable duration when the data unit size exceeds the threshold; and

a processor configured to receive the selected notifications and to assemble output data based on the selected notifications.

19. The system of claim 18, further comprising:

a flow control device coupled to the processor configured to provide a flow control signal when a size of data units associated with notifications being processed by the processor becomes too high,

wherein the duration is based on a latency associated with processing by the flow control device.

20. The system of claim 18, wherein the threshold is based on a processing rate of the processor.

21. A method for processing high priority data units and low priority data units in a network device, comprising:

performing arbitration on high priority notifications that correspond to the high priority data units and outputting selected high priority notifications to a processor until no high priority notifications remain;

enabling arbitration on low priority notifications that correspond to the low priority data units;

performing arbitration on the low priority notifications and outputting a selected low priority notification to the processor;

comparing a data units size associated with the selected low priority notification with a threshold; and

excluding a queue that contained the selected low priority notification from subsequent arbitration for a duration when the data unit size exceeds the threshold.

22. The method of claim 21, further comprising:

setting the threshold based on a processing rate of the processor.

23. The method of claim 21, further comprising:

setting the duration based on a latency associated with controlling flow of notifications to the processor.